

of the restoration of the electrical equilibrium by the intervention of the frozen particles, which being imperfect conductors, become luminous while transmitting this electricity. In tropical and temperate climates this phenomenon does not occur, because the electric equilibrium is restored by means of aqueous vapours, a process which often gives rise to thunder and lightning, but never to the Aurora Borealis; the latter being peculiar to clear, cold and dry weather.

8. "Théorie Balistique." Par M. Le Comte de Prédaval. Communicated by Dr. Roget, Sec. R.S.

The author inquires into the influence which he conceives the following circumstances may have on the path of a projectile on the surface of the earth; namely, first, the direction of the line of projection relatively to the meridian or cardinal points; secondly, the latitude of the place; and thirdly, the barometric conditions of the atmosphere.

9. "On the Atmospheric Tides and Meteorology of Dukhun, in the East Indies." By Lieut.-Colonel W. H. Sykes, F.R.S.

The author premises detailed descriptions of the various instruments used in the meteorological observations recorded in this paper, and of the methods employed in obtaining his results; of which the great features are the barometrical indications of diurnal and nocturnal atmospheric tides, embracing two maxima and two minima in the twenty-four hours. The following are the chief topics noticed in the paper, and the principal facts established by these inquiries: namely, 1. The removal of the doubts entertained by Humboldt, founded on the authority of Horsburgh, of the suspension of the atmospheric tides during the monsoon in Western India; the existence of the four atmospheric tides already mentioned, and their occurrence within the same limiting hours as in America and Europe; the greatest mean diurnal oscillations in Dukhun taking place in the coldest months, and the smallest in the damp months; whilst at Madras, the smallest oscillations are in the hottest months, and in Europe it is supposed that the smallest oscillations are in the coldest months. 2. The regular diurnal and nocturnal occurrence of the tides, without a single case of interversion, whatever may be the thermometric or hydrometric indications, or the state of the weather; storms and hurricanes only modifying, but not interrupting them. 3. The anomalous fact of the mean diurnal oscillations being greater at Poona, at an elevation of 1823 feet, than at the level of the sea, in a lower latitude, at Madras. 4. The fact of the diurnal tides, at a higher elevation than Poona, being less, whilst the nocturnal tides are greater than at Poona; and the seasons apparently not affecting the limiting hours of the tides. 5. The maximum mean pressure of the atmosphere being greatest in December and January; then gradually diminishing until July and August; and subsequently increasing to the coldest months. 6. The very trifling diurnal and annual oscillations compared with those of extra-tropical climates. 7. The annual range of the thermometer being less in Dukhun